

CLAIMS:

1. An apparatus for measuring electrical conductivity in a material, said apparatus comprising:
  - a pair of electrically conducting elements for contacting the material;
  - 5 a first electrical conductor coupled to said electrically conducting elements, said first electrical conductor coupling a first transformer core and a second transformer core to form a first current loop; and
  - a second electrical conductor of known resistance coupling said second transformer core and a third transformer core to form a second current loop.
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2. The apparatus of claim 1, wherein said electrically conducting elements are bolts or plugs or plates.
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3. The apparatus of claim 1, wherein said first, second and third transformer cores are toroidal "C", "O" or "E" transformer cores or combinations thereof.
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4. The apparatus of claim 1, wherein said first, second and third transformer cores are ferrite cores, laminated cores or powdered iron cores or combinations thereof.
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5. The apparatus of claim 1, further comprising at least one mounting plate for mounting said electrically conducting elements, said at least one mounting plate attached to a container for said material.